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09/997,643	11/29/2001	Richard S. Ohran	14113.79	7417
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WORKMAN NYDEGGER (F/K/A WORKMAN NYDEGGER & SEELEY) 60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111			BRADLEY, MATTHEW A	
			ART UNIT	PAPER NUMBER
			2187	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/997,643		OHRAN, RICHARD S.	
	Examiner		Art Unit	
	Matthew Bradley		2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This Office Action has been issued in response to amendment filed 31 October 2005. Claims 24-53 remain pending and are ready for examination. Applicant's arguments have been carefully and fully considered in light of the instant amendment, but are considered moot in light of the new ground(s) of rejection as necessitated by amendment. Accordingly, this action has been made FINAL.

Claim Objections

The objections made to claims 38 and 41 in the Office Action dated 15 June 2005 are withdrawn in light of the instant amendment.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 53 is rejected under 35 U.S.C. 102(b) as being anticipated by Ohran (U.S. 5,835,953).

As per independent claim **53**, Ohran teaches,

- initiating the creation of a snapshot copy of data blocks stored on a mass storage device at a first time when the data blocks are in a logically consistent state on the mass storage device, wherein the snapshot copy initially contains data blocks that are identical to the data blocks at a time

prior to the first time; (Column 10 lines 39-41 ...teach the current copy of data and Column 10 line 65 to Column 5 teach the logically consistent portion).

- o during a time period between the first time and a second time, tracking changes to the data blocks of the mass storage device so as to identify which data blocks change in the time period; and (Column 11 line 47 to 51). *The Examiner notes that Ohran teaches a mechanism in place to identify the changes that are made after a first time and a second time.*
- o at the second time when the data blocks are in a logically consistent state, initiating an update of the snapshot copy by transmitting only those data blocks that have changed during the time period between the first time and second time to the snapshot copy such that the snapshot copy includes a copy of the data blocks as the data blocks existed on the mass storage device at the second time (Column 11 line 52-64).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armangau (U.S. 6,434,681) in view of Ohran (U.S. 5,835,953).

As per independent claim **24**, Armangau teaches,

- o receiving information from a user designating data blocks of the mass storage device to be included in a snapshot copy that is to preserve the designated subset of the data blocks as the designated data blocks existed at a first point in time, (column 6 lines 14-29). *The Examiner notes that Armangau teaches of 'units of data storage' which is representative of the 'blocks' that are disclosed in the instant claim.*

Armangau does not teach, ensuring that the designated data blocks are in a logically consistent state such that the first point in time corresponds to a time when no activity exists on the mass storage device.

Ohran teaches,

- o ensuring that the designated data blocks are in a logically consistent state such that the first point in time corresponds to a time when no activity exists on the mass storage device; (Column 10 line 65 to Column 11 line 5)

Ohran further teaches,

- o as the data blocks at the mass storage device change after the first point in time, identifying the data blocks of the designated data blocks that change at the mass storage device, (Column 10 lines 55-64)
- o preserving a copy of the data blocks of the designated data blocks that change, wherein the preserved copy of the changed data blocks represents an original copy of said data blocks of the designated data blocks prior to changing; and providing access to the snapshot copy of the designated subset of the data blocks (Column 11 lines 6-20).

Armangau and Ohran are analogous art because they are from the same problem solving area of snapshot creation.

At the time of invention it would have been obvious to a person of ordinary skill in the art, having both the teachings of Armangau and Ohran before him/her, to integrate the logically consistent requirement before a snapshot is created of Ohran into Armangau for the benefit of being sure that no logical inconsistencies are present in the snapshot copy.

The motivation for doing so would have been that, "a logically consistent backup copy contains no logical inconsistencies such as data files that are corrupt or terminated improperly (Column 1 lines 60-62 of Ohran)." Further, "by ensuring that the backup device is in a logically consistent state, the present invention ensures that a useable backup is always available (Column 10 lines 52-54 of Ohran)."

Therefore it would have been obvious to combine Armangau with Ohran for the benefit of logical consistency to obtain the invention as specified in claims 24-52.

As per dependent claim **25**, Armangau teaches, wherein the snapshot copy is created without disrupting user access to the designated data blocks to the extent that users are able to continue to issue I/O requests to the mass storage device as the snapshot is created (column 6 lines 48-50). *The Examiner notes that Armangau teaches a system that is, 'constructed in such a way that the host can continue to access the primary storage concurrently with the copying process.' This 'access' would involve 'I/O' requests as disclosed in the instant claim.*

As per dependent claim **26**, Armangau teaches, wherein the act of identifying data blocks of the designated data blocks that change at the mass storage device comprises the act of maintaining a table that includes an entry for at least the data blocks of the designated subset that have changed after the first point in time, (column 13 lines 58-65 and elements 127-128 of Figure 7b). *The Examiner notes that Armangau teaches an equivalent to the disclosure of 'table' in the instant claim with the recitation of 'bit map'. Further Ohran teaches keeping track of changed data blocks with the use of a map as shown in column 10 lines 60-64.*

As per dependent claim **27**, Armangau teaches, further comprising the act of maintaining the snapshot copy as a backup of the designated data blocks as the designated data blocks existed at the first point in time, (column 8 lines 15-19). *The Examiner notes that Armangau teaches the feature of containing 'more than one version of backup data.' This feature of more than one version, allows the first 'snapshot copy' to be a copy 'as the designated subset existed at the first point in time'.*

As per dependent claim **28**, Armangau teaches, further comprising the act of restoring the designated data blocks using the snapshot copy after experiencing data loss at the mass storage system after the first point in time, (column 8 lines 33-37).

As per dependent claim **29**, Armangau teaches,

- o the preserved copy of the changed data blocks for those data blocks of the designated data blocks that have changed, (column 8 lines 15-19).

The Examiner notes that as discussed supra, the secondary storage system of Armangau can contain 'more than one version of backup data.'

With respect to the instant claim, the Examiner notes that the 'preserved copy of the changed data blocks' would be a 'version' as taught by Armangau.

- original copies of those data blocks of the designated data blocks that have not changed after the first point in time (column 8 lines 15-19). *The Examiner notes that as discussed supra, the secondary storage system of Armangau can contain 'more than one version of backup data.' With respect to the instant claim, the Examiner notes that the 'original copies of those data blocks' would be a 'version' as taught by Armangau.*

As per dependent claim 30, Armangau teaches,

- further comprising the act of creating a second snapshot copy of the designated data blocks as the designated data blocks existed at a second point in time, (column 8 lines 15-19). *The Examiner notes that Armangau teaches the feature of containing 'more than one version of backup data.' This feature of more than one version, allows the second 'snapshot copy' to be a copy 'as the designated subset existed at a second point in time'.*
- as the data blocks at the mass storage device change after the second point in time, and in response to the information, identifying the data blocks of the designated data blocks that change at the mass storage device, (column 13 lines 58-65 and elements 127-128 of Figure 7b).
- preserving a copy of the data blocks of the designated data blocks that change after the second point in time, wherein the copy of the changed

data blocks represents an original copy of said data blocks of the designated subset prior to changing after the second point in time; and (column 8 lines 15-19). *The Examiner notes that as discussed supra, the secondary storage system of Armangau can contain 'more than one version of backup data.'* With respect to the instant claim, the Examiner notes that the 'data blocks of the designated subset that change after the second point in time' would be a 'version' as taught by Armangau.

- providing access to the second snapshot copy of the designated subset of the data blocks, where in the second snapshot copy includes, (column 8 lines 33-37). *The Examiner notes that the 'tag' taught by Armangau would designate and differentiate between the stored versions on the secondary storage device allowing for access to the plurality of versions stored on the secondary storage device. Accordingly, the 'tag' allows the system to select the appropriate snapshot copy*
- the preserved copy of the changed data blocks for those data blocks of the designated data blocks that have changed after the second point in time; (column 8 lines 15-19). *The Examiner notes that as discussed supra, the secondary storage system of Armangau can contain 'more than one version of backup data.'* With respect to the instant claim, the Examiner notes that the 'preserved copy of the changed data blocks' would be a 'version' as taught by Armangau.

- o original copies of those data blocks of the designated data blocks that have not changed after the second point in time, (column 8 lines 15-19).

The Examiner notes that as discussed supra, the secondary storage system of Armangau can contain 'more than one version of backup data.'

With respect to the instant claim, the Examiner notes that the 'original copies of those data blocks' would be a 'version' as taught by Armangau.

As per dependent claim 31, Armangau teaches, wherein the act of providing access to the snapshot copy comprises the act of permitting a user to change data blocks of the snapshot copy, such that the snapshot copy represents a changed version of the designated subset of the data blocks, (Figure 2 item 92 and column 9 lines 35-45). *The Examiner notes that in item 92 of figure 2, Armangau teaches a data link from a system manager to the secondary storage system. This data link, further taught in column 9 lines 35-45, allows for 'data storage management' of the secondary storage which would allow for modifications of the copies of data to then be dispersed through items 93 and 94 of figure 2 as needed.*

As per dependent claim 32, Armangau teaches, wherein the act of providing access to the snapshot copy comprises the act of enabling read access to the snapshot copy, (column 12 lines 49-60). *The Examiner notes that the 'restore request' received from the 'front-end data mover computer' would begin the process of transferring data to the requesting computer. Before the data is moved however, a read command must be issued allowing the data mover 'read access' to select the data being requested from the requesting computer.*

As per dependent claim **33**, Armangau teaches, wherein the act of providing access to the snapshot copy is performed while providing ongoing access to the data blocks stored in the mass storage device, (column 10 lines 33-49 and column 11 lines 1-11). *The Examiner notes that the secondary storage system as taught by Armangau, contains cache memory which is linked to the 'back-plane busses'. The cache memory contains data that is frequently requested by user computers. Caching the data into the cache memory and allowing the secondary storage system to access the data via a 'back-plane bus' would allow for continued access to the 'data blocks stored' in the secondary storage system while still allowing for access to the snapshot copy.*

As per dependent claim **34**, Armangau teaches, wherein the act of preserving a copy of the data blocks of the designated subset that change is performed by preserving a copy of the data blocks of the designated subset only in response to a first change thereof after the first point in time and not in response to any subsequent changes, (column 8 lines 15-19). *The Examiner notes that as discussed supra, the secondary storage system of Armangau can contain 'more than one version of backup data.' With respect to the instant claim, the Examiner notes that the 'copy of the data blocks' would be a 'version' as taught by Armangau*

As per independent claim **35**, Ohran teaches,

- maintaining a snapshot copy of a designated subset of the data blocks stored in the mass storage device, the snapshot copy preserving the designated subset of the data blocks as the designated subset existed at a first point in time and wherein the snapshot copy is created at a time

when the designated subset of the data blocks is in a logically consistent state such that no activity is present on the mass storage device, wherein the snapshot copy includes: (Column 10 line 42 to Column 11 line 5).

Armangau teaches,

- preserved copies of those data blocks of the designated subset of the data blocks that have changed at the mass storage device after the first point in time, (column 8 lines 15-19). *The Examiner notes that as discussed supra, the secondary storage system of Armangau can contain 'more than one version of backup data.' With respect to the instant claim, the Examiner notes that the 'preserved copies of those changed data blocks' would be a 'version' as taught by Armangau.*
- original copies of those data blocks of the designated subset of the data blocks that have not changed after the first point in time, (column 8 lines 15-19). *The Examiner notes that as discussed supra, the secondary storage system of Armangau can contain 'more than one version of backup data.' With respect to the instant claim, the Examiner notes that the 'original copies of those data blocks' would be a 'version' as taught by Armangau.*
- experiencing loss of at least some of the designated subset of the data blocks at the mass storage device after the first point in time; and restoring the designated data blocks of the mass storage device using the snapshot copy, (column 12 lines 49-60). *The Examiner notes that the 'restore*

request' received from the 'front-end data mover computer' would begin the process of transferring data to the requesting computer. With respect to the instant claim, the restore request would be issued after the requesting computer experienced data loss.

As per dependent claim **36**, Armanagu teaches, wherein the designated subset has been selected by a user of the computer system (column 8 lines 33-37).

As per dependent claim **37**, Armangau teaches, wherein the act of restoring the designated data blocks comprises the act of restoring the designated data blocks to the state in which they existed at the first point in time (Column 8 lines 15 –25 and column 8 lines 33-37). *The Examiner notes that the 'tag' as taught and used by Armangau, would allow the user of the computer system to select the version he or she wishes to restore including restoring the 'designated data blocks to the state in which they existed at the first point in time.'*

As per dependent claim **38**, Armangau teaches, experiencing a condition that results in corruption of said at least some of the designated data blocks; and prior to the corruption of at least some of the designated data blocks, preserving a copy of said at least some of the designated subset, wherein the copy of the changed data blocks represents an original copy of said at least some of data blocks," (column 8 lines 15-19). *The Examiner notes that Armangau teaches the feature of containing 'more than one version of backup data.'* This feature of more than one version, allows a 'copy of the changed data blocks' representing 'an original copy' to be a copy used for restoration.

As per dependent claim **39**, Armangau teaches,

- as data blocks are stored in the mass storage device, receiving from the user information that identifies the designated subset of the data blocks selected by the user, (column 8 lines 33-37).
- as the data blocks at the mass storage device change after the first point in time, and in response to the information, identifying the data blocks of the designated subset that change at the mass storage device; (column 13 lines 58-65 and elements 127-128 of Figure 7b). *The Examiner notes that Armangau teaches a way to identify data blocks that have changed with the recitation of and use of a 'bit map'.*
- preserving the copy of the data blocks of the designated subset that change, wherein the copy of the changed data blocks represents an original copy of said data blocks of the designated subset prior to changing, (column 8 lines 15-19). *The Examiner notes that Armangau teaches the feature of containing 'more than one version of backup data.'* *This feature of more than one version, allows an 'original copy of said data blocks' to be a copy 'of the designated subset prior to changing'.*

As per dependent claim **40**, Armangau teaches, further comprising the act of maintaining one or more other snapshot copies of the designated subset of the data blocks as they existed at the mass storage device at other points in time after the first point in time (column 8 lines 15-19). *The Examiner notes that Armangau teaches the feature of containing 'more than one version of backup data.'* *This feature of more than one version, allows the system to 'maintain one or more other snapshot copies.'*

As per independent claim 41, Armangau teaches,

- In a computer system having a mass storage device that stores data blocks, a method of providing users access to a snapshot copy of selected data blocks while providing ongoing access to the data blocks stored on the mass storage device (column 10 lines 33-49 and column 11 lines 1-11). *The Examiner notes that the secondary storage system as taught by Armangau, contains cache memory which is linked to the 'back-plane busses'. The cache memory contains data that is frequently requested by user computers. Caching the data into the cache memory and allowing the secondary storage system to access the data via a 'back-plane bus' would allow for continued access to the 'data blocks stored' in the secondary storage system while still allowing for access to the snapshot copy.*

Ohran teaches,

- comprising the acts of: receiving an instruction to create a snapshot copy of selected data blocks; ensuring that the selected data blocks are in a logically consistent state such that no activity is present regarding at least the selected data blocks; (Column 10 line 65 to Column 11 line 5)

Armangau teaches,

- maintaining the snapshot copy the selected data blocks stored in the mass storage device, the snapshot copy preserving the selected data blocks as the selected data blocks existed at a first point in time wherein the snapshot copy

includes: (column 8 lines 15-19). *The Examiner notes that Armangau teaches the feature of containing 'more than one version of backup data.'* *This feature of more than one version, allows a first 'snapshot copy' to be a copy 'as the designated subset existed at the first point in time'.*

- preserved copies of those data blocks of the selected data blocks that have changed at the mass storage device after the first point in time; (column 8 lines 15-19). *The Examiner notes that as discussed supra, the secondary storage system of Armangau can contain 'more than one version of backup data.'* *With respect to the instant claim, the Examiner notes that the 'preserved copies of those changed data blocks' would be a 'version' as taught by Armangau.*
- original copies of those data blocks of the selected data blocks that have not changed after the first point in time; (column 8 lines 15-19). *The Examiner notes that as discussed supra, the secondary storage system of Armangau can contain 'more than one version of backup data.'* *With respect to the instant claim, the Examiner notes that the 'original copies of those data blocks' would be a 'version' as taught by Armangau.*
- providing access to the snapshot copy of the selected data blocks, such that changes to the snapshot copy do not change the selected data blocks stored on the mass storage device; while providing access to the snapshot copy, providing access to the selected data blocks stored on the mass storage device, such that changes to the selected data blocks stored on

the mass device do not change the snapshot copy (Figure 2 item 92 and column 9 lines 35-45). *The Examiner notes that in item 92 of figure 2, Armangau teaches a data link from a system manager to the secondary storage system. This data link, further taught in column 9 lines 35-45, allows for 'data storage management' of the secondary storage. This management would allow for changes to the snapshot copies or to changes of other data blocks so as to not interfere with the snapshot copies.*

As per dependent claim **42**, Armangau teaches, wherein the selected data blocks are selected by a user of the computer system, (column 8 lines 33-37).

As per dependent claim **43**, Armangau teaches, wherein the act of providing access to the snapshot copy comprises the act of providing write access to the snapshot copy by which the data blocks of the snapshot copy can be changed, (Figure 2 item 92 and column 9 lines 35-45). *The Examiner notes that in item 92 of figure 2, Armangau teaches a data link from a system manager to the secondary storage system. This data link, further taught in column 9 lines 35-45, allows for 'data storage management' of the secondary storage. This management would allow for changes to the snapshot copies.*

As per dependent claim **44**, Armangau teaches, further comprising the act of maintaining one or more snapshot copies of the selected data blocks as they existed at the mass storage device at other points in time after the first point in time, (column 8 lines 15-19). *The Examiner notes that Armangau teaches the feature of containing*

'more than one version of backup data.' This feature of more than one version, allows the system to perform the act of 'maintaining one or more snapshot copies.'

As per dependent claim **45**, Armangau teaches,

- as data blocks are stored in the mass storage device, receiving from the user information that identifies the selected data blocks selected by the user, (column 8 lines 33-37).
- as the data blocks at the mass storage device change after the first point in time, and in response to the information, identifying the data blocks of the selected data blocks that change at the mass storage device; (column 13 lines 58-65 and elements 127-128 of Figure 7b). *The Examiner notes that Armangau teaches a way to identify data blocks that have changed with the recitation of and use of a 'bit map'.*
- preserving the copy of the data blocks of the selected data blocks that change, wherein the copy of the changed data blocks represents an original copy of said data blocks of the selected data blocks prior to changing, (column 8 lines 15-19). *The Examiner notes that Armangau teaches the feature of containing 'more than one version of backup data.' This feature of more than one version, allows an 'original copy of said data blocks' to be a copy 'of the designated subset prior to changing'.*

As per independent claim **46**, Armangau teaches,

- maintaining a first snapshot copy of a first designated subset of the data blocks stored in the mass storage device, the snapshot copy preserving

the first designated subset of the data blocks as the first designated subset existed at a first point in time, (column 8 lines 15-19). *The Examiner notes that Armangau teaches the feature of containing 'more than one version of backup data.' This feature of more than one version, allows a first 'snapshot copy' to be a copy 'as the designated subset existed at the first point in time'.*

Ohran teaches

- wherein the first snapshot copy is created at a first time when the designated subset of data blocks is in a logically consistent state such that no activity is present in the mass storage device, wherein the first snapshot copy includes, (Column 10 lines 65 to Column 11 line 5)

Armangau teaches,

- preserved copies of those data blocks of the subset of first designated data blocks that have changed at the mass storage device after the first point in time; and original copies of those data blocks of the first designated subset of the data blocks that have not changed after the first point in time; (column 8 lines 15-19). *The Examiner notes that as discussed supra, the secondary storage system of Armangau can contain 'more than one version of backup data.' With respect to the instant claim, the Examiner notes that 'original copies of those data blocks' would be a 'version' as taught by Armangau.*

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- maintaining a second snapshot copy of a second designated subset of the data blocks stored in the mass storage device, the snapshot copy preserving the second designated subset of the data blocks as the second designated subset existed at a second point in time, (column 8 lines 15-19). *The Examiner notes that Armangau teaches the feature of containing 'more than one version of backup data.' This feature of more than one version, allows a first 'snapshot copy' to be a copy 'as the designated subset existed at the first point in time'.*

Ohran teaches,

- wherein the second snapshot copy is created at a second time when the designated subset of data blocks is in a logically consistent state such that no activity is present in the mass storage device, wherein the second snapshot copy includes, (Column 10 line 65 to Column 11 line 5)

Armangau teaches,

- preserved copies of those data blocks of the subset of second designated data blocks that have changed at the mass storage device after the second point in time; and original copies of those data blocks of the second designated subset of the data blocks that have not changed after the second point in time; (column 8 lines 15-19). *The Examiner notes that as discussed supra, the secondary storage system of Armangau can contain 'more than one version of backup data.' With respect to the instant claim, the Examiner notes that 'preserved copies of those data*

blocks of the second designated subset of the data blocks' would be a 'version' as taught by Armangau.

As per dependent claim **47**, Armangau teaches, wherein the first designated subset and the second designated subset are selected by a user of the computer system, (column 8 lines 33-37).

As per dependent claim **48**, Armangau teaches, further comprising the act of providing access to the first snapshot copy of the first designated subset of the data blocks while independently providing access to the data blocks stored on the mass storage device, (column 10 lines 33-49 and column 11 lines 1-11). *The Examiner notes that the secondary storage system as taught by Armangau, contains cache memory which is linked to the 'back-plane busses'. The cache memory contains data that is frequently requested by user computers. Caching the data into the cache memory and allowing the secondary storage system to access the data via a 'back-plane bus' would allow for continued access to the 'data blocks stored' in the secondary storage system while still allowing for access to a snapshot copy.*

As per dependent claim **49**, Armangau teaches, wherein the first period of time is different from the second period of time, (column 8 lines 15-19 and lines 33-37).

As per dependent claim **50**, Armangau teaches, wherein the first designated subset of the data blocks is different from the second designated subset of the data blocks, (column 8 lines 15-19 and column 33-37).

As per dependent claim **51**, Armangau teaches, further comprising the act of maintaining the first and second snapshot copies as backups of the first and second

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designated subsets of the data blocks, respectively, (column 8 lines 15-25 and lines 33-37).

As per dependent claim **52**, Armangau teaches, further comprising the act of restoring the first designated subset of the data blocks using the first snapshot copy after experiencing data loss at the mass storage system, (column 8 lines 33-37 and column 12 lines 49-60). *The Examiner notes that the 'restore request' received from the 'front-end data mover computer' would begin the process of transferring data to the requesting computer. With respect to the instant claim, the restore request would be issued after the requesting computer experienced data loss. The restore request would contain the 'tag' to ensure the 'first snapshot copy' was the copy being restored.*

Response to Arguments

Applicant's arguments have been carefully and fully considered in light of the instant amendment, filed 31 October 2005, but are considered moot in light of the new ground(s) of rejection as necessitated by amendment and noted supra.

With respect to applicant's argument located within the first paragraph of page 13 of the instant remarks which recites:

'More particularly, because Armangau does not teach or suggest each and every limitation of the claims 24-52 as those limitations are set forth in claims 24-52, Armangau does not teach or suggest the pending claims.'

The Examiner agrees that Armangau does not teach those limitations set forth in claims 24-52 as amended and refers applicant's to the rejection supra.

With respect to the applicant's argument located at the bottom of the last full paragraph on page 13 of the instant remarks which recites:

'As discussed at the interview, Armangau does not teach or suggest ensuring that the data blocks are in a logically consistent state.'

The Examiner agrees that Armangau does not teach ensuring that the data blocks are in a logically consistent state, however, in light of the instant amendment, a new ground(s) of rejection has been applied as noted supra in which case Ohran clearly teaches ensuring that the data blocks are in a logically consistent state. This is taught throughout Ohran and explicitly in Column 10 line 65 to Column 11 line 5 as shown in the rejection supra and noted below.

"...At some point in time, it is desirable to capture the changes that have been made and to transfer those changes to the backup system. In a preferred embodiment, the system identifies logically consistent state of the mass storage device and takes a static snapshot of at least those storage locations that have been changed ..."

With respect to the applicant's argument located in the first full paragraph on page 14 of the instant remarks which recites:

'As discussed at the interview, the allocation of data structures used for the snapshot at the creation of a snapshot as taught by Armangau does not teach or suggest ensuring that the data blocks are in a logically consistent state.'

The Examiner agrees, again, that Armangau does not teach ensuring that the data blocks are in a logically consistent state, however, as noted supra and in the rejection supra, Ohran teaches a logically consistent state and the Examiner incorporates the remarks made supra.

With respect to the applicant's argument located in the second full paragraph on page 14 of the instant remarks which recites:

'For at least these reasons, Armangau does not teach or suggest all of the elements of claim 24 as set forth in claim 24. Claim 24 is therefore not anticipated by Armangau and is in condition for allowance. The dependent

claims 29-34 depend from claim 24 and also overcome the art for at least the same reasons.'

The Examiner incorporates by reference herein the remarks made supra.

With respect to the applicant's arguments located in the fourth full paragraph on page 14 of the instant remarks which recites:

'... As a result, only copies of the data blocks that have changed in the time period between the first time and the second time are transmitted to the snapshot copy. In contrast to the new claim 53 and as discussed above, Armangau teaches that all of the data blocks are transferred to the secondary storage.'

The Examiner refers applicant's to the rejection made supra and incorporates by reference herein the remarks made with respect to claim 53.

Any argument not specifically addressed is considered moot in light of the new ground(s) of rejection as necessitated by amendment.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

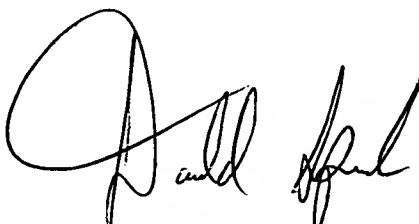
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew Bradley whose telephone number is (571) 272-8575. The examiner can normally be reached on 6:30-3:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald A. Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DAS/mb



DONALD SPARKS
SUPERVISORY PATENT EXAMINER